



APPARATUS AND METHOD FOR ACQUIRING AN UPLINK TRAFFIC
CHANNEL IN WIRELESS COMMUNICATIONS SYSTEMS

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Technical Field

5 This invention relates to wireless communications systems and, more particularly, to wireless communications between mobile units and base stations.

Background of the Invention

10 The basic mechanism in wireless communication systems for acquiring an uplink traffic channel between a base station and one or more mobile units to transmit data is to provide each mobile unit with a dedicated control channel for exchanging control messages. One such wireless system is the Orthogonal Frequency Division Multiplex (OFDM) based spread spectrum multiple access system. A representation of a dedicated control channel including messages transported on it is shown in FIG. 1. Fixed length control messages are used and a so-called one size fits all approach is utilized to
15 determine the length of control messages. Consequently, the length of the control messages corresponds to the longest message that has to be transported on the dedicated control channel. One such control message is a request for a traffic channel that is typically shorter than the longest control message. These control messages also have headers that indicate the structure and type of control message. Since the request
20 messages have to be packaged into the standard fixed length control message there is overhead. Additionally, if the request messages have to be transmitted frequently to compensate for changing mobile unit traffic requirements and to reduce the adverse impact of losing traffic requests, the wireless system incurs a significant amount of overhead and becomes quite inefficient. The length of the fixed control message also
25 increases latency in conveying the requests to the base station and receiving responses from the base station.

Summary of the Invention

Problems and limitations of prior uplink traffic channel allocation arrangements are addressed by utilizing a dedicated control channel in which a prescribed portion of the
30 control channel resource, for example, frequency, time slot or the like, is reserved for transporting the uplink traffic channel requests. Both the base station and the particular

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